CONSOLIDATED INFORMATION TECHNOLOGY SERVICES
TASK ASSIGNMENT (TA)

1. **TITLE:** (B702) CSS SERVICES SUPPORT

TA No:	RFD011-Rev12	
Task Area Monitor:	**Alternate Task Area Monitor:**	
NASA POC:	**Software Control Class:**	Low Control
Type of Task:	Recurring Task	

2. BACKGROUND

The Central Storage System (CSS) provides large scale, network-accessible storage for the LaRC other NASA Centers, and their approved contractors. CSS is the next generation of the Distributed Mass Storage System (DMSS). CSS uses a Hierarchical Storage Management (HSM) approach with three levels in its storage hierarchies: disk, primary copy tape and secondary tape. The current configuration consists of Fibre-Channel disk array systems and a StorageTek Automated Cartridge System with T10K and 9940 tape technologies. The HSM software used is IBM's High Performance Storage System (HPSS). CSS is managed by the Information Management Branck (IMB).

3. OBJECTIVE

The Contractor shall provide quality round-the-clock data storage and retrieval services to individual users and IT services. The Contractor shall ensure the security of the stored data by maintaining highly disciplined control and monitoring of the physical and software accesses of data as well as the environmental factors required of the tape technologies for data integrity. These services will be required to perform user-transparent migration of data prompted by hardware and software technology upgrades. Additionally, the Contractor shall address new user or project data requirements and Government's IT infrastructure requirements, and evaluate mass storage systems and technologies and the interface of mass storage systems to other IT technologies.

4. GENERAL IT SUPPORT SERVICES

Services Specified Through Exhibit A:
Refer to Exhibit A: Inventory of Equipment and Software that identifies the equipment/software maintained under Task RFD011. The services of System and IT Security Administration shall be provided for those systems for which "System and IT Security Administration Required" is checked in Exhibit A. The level of security shall be consistent with the information category identified by the code checked for each such system (see NPG 2810.1). Any system software, application software, or database software that is licensed to run on a particular item of equipment is entered in the respective column for that item. Software that does not require a license is also included if it is relevant to any of the required

services. The services of Hardware Maintenance (HM), System Software Management (SSM), Applications Management (AM) and Database Administration (DBA) are required for some of the items of equipment.

Maintenance of Software Developed By or For LaRC:
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A. Software Identification:
CSS Local Suite
LaRC Software Manager:
Software Class: Low Software Description: All of the software runs under IBM's AIX, Sun's Solaris, or RedHat Linux

Category/Name Language

1. User Validation
1.1. < validate > C language
1.2. < pwexpire > C language
1.3. < pwexpire-notify > Bourne shell
1.4. < expire-users > C language

2. Backups
2.1. AIX backup management software
2.1.1. < bkaix,bkaix-to-tape,bkaix-to-dmss,bkaix-purge > Bourne shell
2.1.2. < masbackup > Bourne shell
2.1.3. < MKSYSB > Bourne shell
2.1.4. < verify-tapes > Bourne shell

2.2. DB2 backup management software
2.2.1. < db2backup_full_cron > Bourne shell
2.2.2. < db2backup_tape_cron > Bourne shell

3. File Recovery
3.1. HPSS native format data
3.1.1. < HPSStape > C language

4. Operational Monitoring
4.1. AIX filesystem monitor
4.1.1. < dfexec,xdf > Bourne shell, tcl/tk

4.2. Automated monitoring and paging software
4.2.1. < auto-check-hpss,auto-* > Bourne shell
4.2.2. < timeout > C language

4.3. HPSS disk cache monitor
4.3.1. < hpssdf,xhpssdf > Bourne shell, tcl/tk

4.4. HPSS event monitor
4.4.1. < whpss,xwhpss > C language, tcl/tk

4.5. HPSS migration monitor
4.5.1. < xhpssmig > tcl/tk

4.6. HPSS DB2 Scripts
4.6.1. < bfcoschange > Bourne shell, SQL
4.6.2. < bfid2path > Bourne shell, SQL

4.7. VFS Scripts
4.7.1. < vfs-stat > Bourne shell

5. Offsite Tape Storage / Media Management
5.1. /backups and /purged_users deletion software
5.1.1. < qikndirty3, ridding70 > C language, Bourne shell

5.2. Tape tracking software
5.2.1. < SILO > Bourne shell

6. Reporting / Logging
6.1. HPSS reporting software
6.1.1. < qikndirty > C language

6.2.User Traffic Reporting Software
6.2.1. < daily-traffic-report > Bourne shell
6.2.2. < weekly-traffic-report > Bourne shell
6.2.3. < bucket-report > Bourne shell
6.2.4. < vfs-traffic-report > Bourne shell

7. Startup/Shutdown
7.1. DMSS access control software
7.1.1. < check-access,*-access> Bourne shell
7.1.2. < enable-ftp,*-ftp> Bourne shell

8.1. HPSS startup/shutdown software
8.1.1. < check-hpss > Bourne shell

9. User Interface
9.1. < dmssqa_ears > Bourne shell
9.2. < dmssqa_ftp > Bourne shell
9.3. < EARS > Bourne shell, C language
9.4. < EARS QA > Bourne shell, C language
9.5. < FTP QA > Bourne shell, C language
9.6. < masbackup > Bourne shell
9.7. < msh > Perl, C language
9.8. < rcp > C language
9.9. < REARS > Bourne shell
9.10. < simu > Bourne shell, C language
9.11. < vfs-qa, perf > Bourne shell

Customer Support and IT Consultation and Training:
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The Contractor shall provide the basic level of Customer Support and IT Consultation and Training given in Sections 4.7 and 4.8 of the SOW for all General IT Support Services.

Where feasible, consultation may be be obtained from appropriate vendors or industry experts to supplement any studies, analyses, or integrations of new technologies or solutions. The Contractor can secure consultation services upon Government approval.

In addition to the basic level customer support the CSS Services support requires the following items and metrics:

1. Provide 8x5 prime shift help desk coverage.
2. Provide mail aliases and web page pointers for users to communicate with support team and ensure periodic checking of the email for timely response.
3. Provide an effective mechanism to inform users of outages and new features.
4. Provide a mechanism to order the return of tape cartridges located offsite from the offsite storage service vendor in case of problems with the primary copy tape cartridges revealed through the user reporting or system QA.
5. Maintain CSS Services' home page with current information while adhering to the Agency rules on Web page maintenance.

Exceptions and Additional Requirements:
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In addition to the services specified through Exhibit A CSS has the following requirements:

I. In the area of hardware and system and COTS application software maintenance:

a) All hardware components of CSS such as server workstations, network equipment and storage devices will have the equipment vendor maintenance purchased by the ConITS contractor on behalf of the Government as indicated by the "X" in the HM column.
b) The system and COTS application software items with "X" in Exhibit A will have the software vendor maintenance purchased by the ConITS Contractor on behalf of the Government.
c) The ConITS Contractor shall annually review the terms and pricing of the maintenance with vendors for cost-effectiveness for maintaining the overall system. The result of this review and the recommendation for changes shall be reported to the Government. The maintenance level of each hardware and software component should be based on the availability requirement of CSS and the budget guidelines set by the Government.
d) ConITS support will modify the Exhibit A of this task to reflect the current configuration whenever there is a major upgrade.

2. ConITS Contractor shall review and maintain the CSS Systems Security Plan and Disaster Recovery Plan. Annual review for improvements to this Plan for timely and innovative methods of recoverability, and a report to the Government on these findings are required. The Contractor shall provide documents that validate that the current disaster recovery plan indeed can be executed to recover the whole mass storage system so that all user data in the system will be intact and accessible. The Contractor shall modify the Plan and implement necessary functions required of the new Plan upon Government approval. In the case of a user's loss of data due to his/her own accidental delete, the Contractor shall maintain existent tools developed for the Government for the current system and provide new ones as

system evolves.

3. The ConITS Contractor shall provide system traffic and storage utilization statistics periodically as requested by the Government. There is a requirement for weekly storage utilization reports based on users and organizations.

4. The ConITS Contract shall manage the user installation, cancellation, periodic revalidation, and other user requests pertaining to the access, ownership, and disposition of files.

5. The ConITS Contractor team lead and/or appropriate level of management representative and team members shall meet weekly with the Government point of contact for this service to discuss issues, requirements, and progress.

General IT Support Services Performance Metrics

Performance Standard: The CSS is operated efficiently and with minimal disruption to services

Performance Metrics:

Exceeds: "Meets" and significant improvement in efficiency is noted; or a successful and rapid recovery from a malfunction or disaster has been accomplished; or the degradation of capability due to malfunctions has been significantly mitigated by supporting staff; or a proactive mechanism has been implemented to prevent loss of user data, increase system availability or increase the ease of management of the system; or high quality software development has been accomplished for new requirements; or suggestions and implementation schemes for system improvements are presented to the Government.

Meets: Analyst response to problems will be measured according to the Customer/Problem Response Guidelines. Trouble reporting system is kept current and daily follow up of problem resolution is carried out. Users are kept informed. Service is available for at least 98% of the time excluding scheduled downtime for system backup function, preventive maintenance, system hardware and software upgrades, and Government required downtime due to holidays, power outages or facility maintenance, or under exceptional circumstances subject to joint review with the Government.

Fails: Any of the requirements of this Task Plan not being satisfied.

Performance Standard: Inventory of equipment and software is up-to-date and accurate.

Performance Metrics:

Exceeds: "Meets" and: semi-annual audit finds no deviations from the actual configuration, or improvements have been made to the configuration management system.

Meets: Data format is satisfactory, semi-annual audit finds only minor deviations from actual configuration, and tracking log is up-to-date.

Fails: Any of the requirements of this subsection are not satisfied.

Performance Standard: The systems to which these services apply are kept up-to-date with minimum disruption in capability due to upgrades.

Performance Metrics:

Exceeds: Notifications of updates or upgrades are acted upon and approved upgrades are installed on schedule and without disruption; or "meets" and improvements to systems are recommended and adopted.

Meets: Notifications of updates or upgrades are acted upon. Approved upgrades are installed with minor delays and disruptions.

Fails: Any of the requirements of this subsection are not satisfied.

Performance Standard: The applications software to which these services apply is fully operational and kept up-to-date with no significant disruption in capability.

Performance Metrics:

Exceeds: "Meets" and improvements are recommended and adopted; or users rate help in the use of applications very good to excellent.

Meets: The inventory, including status, of application software is current and accurate. Upgrades are installed and fully operational within 5 days of receipt (or approval, if later) with no loss of data. Users rate operation and help in use of the applications satisfactory.

Fails: Any of the requirements of this subsection are not satisfied. Users rate operation and help in use of the applications less than satisfactory.

Performance Standard: The security of systems and data that fall under this TA is ensured

Performance Metrics:

Exceeds: The system meets the baseline IT security requirements for an information category; there are no unlatched vulnerabilities, unless the vulnerability has been mitigated by other action, accepted by line management and approved by the LaRC IT Security Manager; user accounts are removed by the close of business of the day that the requirement for an account is terminated.

Meets: Baseline IT security requirements for the information category are either met or have a waiver for non-compliance from the LaRC IT Security Manager; the system is up-to-date with security patches or has scheduled the installation of such patches at the completion of a test that precludes immediate installation; user accounts are removed within one week of the termination of the requirement for an account; any IT Security incidents are reported to the LaRC IT Security Manager as soon as possible after they are discovered.

Fails: The system does not comply with the baseline IT security requirements for the information category and does not have a waiver for non-compliance from the LaRC IT Security Manager; the system is not up-to-date with IT security patches; user accounts, for which the requirement was terminated have not been removed after a period of two weeks; the system has an IT security incident that is not reported to the LaRC IT Security Manager.

Performance Standard: The systems software to which these services apply is fully operational and kept up-to-date with no significant disruption in capability.

Performance Metrics:

Exceeds: "Meets" and anomalies or inefficiencies are recognized and reported to

the vendor or the availability of superior software is recognized and reported to the line manager.

Meets: Software upgrades are installed and fully operational within 5 days of receipt (or approval, if later) with no loss of data.

Fails: Any of the requirements of this subsection are not satisfied.

Performance Standard: Required documentation is complete, understandable, and up-to-date.

Performance Metrics:

Exceeds: Documentation is complete and up-to-date. Improvements have been made in the clarity of documentation.

Meets: Documentation is complete with only minor errors noted.

Fails: One or more required documentation components are not available or errors are noted that could compromise the operation or integrity of the systems.

5. SYSTEM AND APPLICATION DEVELOPMENT SERVICES

Project Title: On-going Software Development Support for CSS

LaRC Software Manager:

Software Software Control Class: Low

Responsibilities of Contractor and LaRC personnel:None

Requirements:

There are on-going requirements for software development in support of CSS services in the areas of:

1. Accounting and Validation
2. Backups
3. File Recovery
4. Operational Monitoring
5. Offsite Tape Storage/Media Management
6. Reporting/Logging
7. Security
8. Software Maintenance
9. Startup/Shutdown
10. System Administration Utilities
11. Troubleshooting
12. User Interface
13. User Support
14. Web Services
15. New Requirements

The CSS Local Suite described in Section 4 is the result of such requirements. This suite list will be expanded and updated semi-annually for this TA. The Contractor shall update

the SPMP, Maintenance Plan and Operation Plan accordingly as each software component evolves in its life cycle. Due to the leading-edge technologies CSS employs, system hardware and software configuration evolves on an on-going basis. As a result, software development is needed for testing new system components and new system features, and their integration into the system. In the case of incorporation or replacement of new tape technologies, tools will be required to transparently move terabytes of data from the old technology to the new ones with minimal impact to the availability of the DMSS services.

Deliverables and delivery schedules will be specified on an on-going basis at joint review meetings and will be recorded and tracked in the Software Project Management Plan for this project.

Constraints:
Development approaches are encouraged to be open, portable and adhere to LMS procedures for software development. For development efforts that require source code from vendors of software for which LaRC holds a source license, the software developers should observe the nondisclosure rule required of such circumstances.

Acceptance Criteria:
Acceptance will be specified on an on-going basis at joint review meetings and will be recorded and tracked in the Software Project Management Plan (SPMP) for this project.

Deliverables:

Number	Deliverable Item	Deliverable Schedule
1	Action Items and Schedule	Action items will be specified on an on-going basis at joint review meetings and will be recorded and tracked in the Software Project Management Plan for this project.

Project Title: Center Storage Project Support

LaRC Software Manager:

Software Software Control Class: Low

Responsibilities of Contractor and LaRC personnel:Contractor will provide support for the architecture, design, and integration of systems as determined by the Center Storage Project (CSP) Team. Alternative analyses, business cases, and additional feasibility studies may result from the recommendations of the CSP Team. The Contractor is expected to provide cost estimates of approved work and provide planning and scheduling support.

Requirements:
Contractor shall provide input during the design of the architecture and assessments of possible solutions. Contractor shall perform systems integration of storage hardware and software in addition to any required server systems. Contractor shall conduct testing to verify system capabilities and validate the system's alignment with requirements. The Contractor shall provide any necessary transition plans to migrate data between appropriate storage resources.

Constraints:
Implementation of the storage architecture and systems shall be conducted without major service disruptions to the users.

Acceptance Criteria:
Once a new storage system architecture is established, the acceptance criteria will be determined based on metrics of the new system architecture.

6. WORK-AREA SPECIFIC SERVICES

Work Area Title: CSS Core Services

LaRC Manager:

Work Area Description: The primary responsibility of this service is the provision of the services of Central Storage System (CSS). The operation of CSS facility encompasses general IT services for the multiple servers in this system, the application management and operation of HPSS and other required COTS and locally developed software, the tape and automated storage library management, offsite storage management, the customer help desk, the 24x7 monitoring of the environment for the facility and the 24x7 monitoring of the system with all of its hardware and software components to ensure the availability of the integrated system for the delivery of the data service. It is required that all CSS Core Services equipment and servers are attached to an Uninterrupted Power Supply (UPS) system and that software is installed to communicate to analysts and operators when the UPS is kicked in due to power glitches so that the system can be gracefully shut down to prevent damages to equipment and data. The integrated system configuration management requires coordination with different hardware and software vendors. New storage technologies are incorporated into cSS periodically. In such cases, transparent movement of data onto newer technology is required. A test system is required to be maintained for the testing of new technologies, new features and new system upgrades. The primary responsibility of this service is the provision of the services of the CSS and the maintenance of the facility and data integrity. The operation of the CSS facility encompasses general IT services for the multiple servers in this system, the application management and operation of HPSS and other required COTS and locally developed software, the tape and automated storage library management, offsite storage management, the customer help desk, the 24x7 monitoring of the environment for the facility and the 24x7 monitoring of the system with all of its hardware and software components to ensure the availability of the integrated system for the delivery of the data service.

Work Area Requirements: The CSS is required to be available for user access 24 hours a day, 7 days a week (except for planned outages). The support staff is responsible for the data stored in DMSS. This responsibility includes the preservation of data integrity though:

a. routine monitoring of the physical, environmental and software accesses to the system
b. disaster recovery
c. system hardware and software upgrades and the migration to new systems and storage technologies

On an on-going basis the support staff is required to address new user or project data

requirements, the Government's IT infrastructure requirements, and evaluate mass storage systems and technologies as well as the interface of mass storage systems to other IT technologies so that CSS can serve the data needs of LaRC/NASA with excellence. Requirements of this work-area support are:

a. Operation Plan
b. Software Maintenance Plan
c. SPMP for the on-going software development required
d. Disaster Recovery Plan for CSS Services
e. configuration management system for the O/S, HPSS and related application software, as well as all hardware including servers and storage and network devices.

7. Exhibit A

Exhibit A

8. SPECIAL SECURITY REQUIREMENTS

The security of data managed by the hierarchical storage management (HSM) software is of utmost importance to the CSS support. This area includes the access control for CSS via HPSS application programming interface, the environment monitoring of the CSS facility that houses equipment and media, the physical access to the facility, and the logistics for offsite storage.

9. SOFTWARE ENGINEERING PROCESS REQUIREMENTS

The contractor shall follow the processes for software lifecycle development, stand-alone maintenance, or stand-alone operation, as specified according to the software control class in Task Assignment SL001.

10. JOINT REVIEW SCHEDULE

There will be a joint review of the work involved with this task at weekly meetings. The ConITS task lead and technical area manager or their alternates are required to attend. The SPMP will be reviewed and updated. Technical performance, timeliness and cost will be discussed.

11. PERIOD OF PERFORMANCE

This TA is effective from 08/01/02 to 04/27/10

12. TECHNICAL PERFORMANCE RATING

In evaluating Technical Performance, quality and timeliness shall be rated as follows:

Quality: 50% Timeliness: 50%

13. RESPONSE REQUIREMENTS

This Task Plan shall address the contractor's specific work plans, associated estimated labor hours, cost and schedule.

14. FUNDING INFORMATION

Funding has not been entered for this TA.

15. MILESTONES

Date	MileStones
04/15/2008	Update CSS Disaster Recovery Plan
04/30/2008	Provide an Updated CSS IT Security Plan

16. DELIVERABLES

Number	Deliverable Item	Deliverable Schedule
1	Updated CSS IT Security Plan	04/30/2008
2	Updated DR Plan	04/15/2008

17. FILE ATTACHMENTS

None.